
तेंदू पत्ता — विशिष्टि
(दूसरा पुनरीक्षण)

Tendu Leaf — Specification
(Second Revision)

ICS 65.160

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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Tobacco and Tobacco Products Sectional Committee had been approved by the Food and Agriculture Divisional Council.

This standard would help the users in obtaining quality leaf, particularly as raw material for bidis. This standard was first published in 1981 and subsequently revised in 1991. It was amended in 2012 where the packing and sampling requirements were modified to bring them in line with the then prevailing trade practices. In this second revision detailed description of the production, harvesting and processing has been added. The requirements for size, texture, colour and odour modified in the grade designations. Requirements regarding maturity has been deleted as it will show up in size, colour, texture, for which requirements have been given. Packaging requirement modified as per trade practices prevalent.

In the formulation of this standard, the committee has given due consideration to the prevailing trade practices in the country and the different grades prescribed under the *Agricultural Produce (Grading and Marking) Act*, 1937 and Rules framed thereunder. The provisions of packaging and marking are also subject to the requirements stipulated under *Legal Metrology (Packed Commodities) Rules*, 2011.

The composition of the technical committee responsible for formulation of this standard is given at Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TENDU LEAF — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements for different grades of *Tendu* leaves.

2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	Title
4905 : 2015/ ISO 24153 : 2009	Random sampling and randomization procedures (first revision)

3 DESCRIPTION

The *tendu* tree is found in mixed deciduous forests in many states of our country. The leaves of *tendu* tree (*Diospyrus melanoxylon* Roxb.) are used for wrapping tobacco mixture by rolling with hands to produce bidis. *Tendu* leaf is considered the most suitable wrapper on account of the ease with which it can be rolled, its wide availability, agreeable flavour, flexibility and resistance to decay. *Tendu* is also known as *abnus* in Andhra Pradesh, *kendu* in Orissa and West Bengal, *tembru* in Gujarat, *kari* in Kerala, *temburni* in Maharashtra, and *balitupra* in Tamil Nadu. The leaf is procured largely from Madhya Pradesh, Chhattisgarh, Odisha, and Maharashtra, and rest from Andhra Pradesh, Bihar, Jharkhand, U.P. and Rajasthan.

Tree pruning or bush cutting is an important operation in the *tendu* leaf production process. *Tendu* plant stem is cut (coppicing) in the month of February. The leaves then sprout and become ready for collection after about 45 days.

Immature leavers are dark caramel, dark red or crimson and turn green as they mature. Fully matured leaves are green, have a leathery shining texture, are elliptical in shape with narrow base and acute apex up to 20 cm in length and 10 cm in width. The leaves are plucked after about 45 days of pruning until the onset of monsoon.

Plucked leaves are collected in bundles and tied with string or grass. A bundle, known as *Puda* in trade, contains 50 to 100 leaves. These bundles are brought to collection centers (known as Phad in trade) and handed over to the purchaser. It is the purchaser's responsibility to dry and process the leaves at the collection centre.

For drying, the bundles are spread on clean ground and turned upside down as required. After 6 to 8 days, the bundles are arranged vertically standing on petioles so that hot and dry air circulates freely and dries the petioles and midrib, a process known as 'Dhera' drying. Drying is complete in about 8 to 10 days. Proper drying of leaves is important as too much residual moisture makes the leaves black and mouldy with foul odour while too much drying makes the leaves brittle resulting in loss during handling.

The leaf bundles are sorted for different grades. Elaborate grading scheme prescribed on the basis of leaf colour, texture, size shape and other body characteristics is followed. Being a produce of nature, the quality of the leaf will naturally depend up on the edaphic and climatic conditions as well as on the methods employed in various operations that is, coppicing, plucking, drying, storage, etc. The bundles of specific grades are packed in separate bags. Before filling the bags, the dried bundles are sprinkled with water to soften them, then filled tightly in bags and exposed to direct sunlight for 2 days (Bharti process, the local name derived from Hindi word which means filling). The bags, thus packed and cured can be stored till their use for bidi rolling. The quantity of leaves packed per bundle varies from state to state, in some states the leaves are packed by numbers and in some states by mass. Usually, a standard bag contains 1 000 bundles of 50 leaves each.

4 PHYSICAL REQUIREMENTS

4.1 Size

Tendu leaves are large sized, upto 20 cm long and 10 cm wide, elliptical in shape, with narrow base and acute apex. Size specifications for various grades are given in Table 1.

4.2 Texture

Tendu leaves shall be medium to thick, pliable and silky and free from hair. They shall not be wrinkled or cracked. The leaves should not be soiled and dirty.

Texture specifications for various grades are given in Table 1.

4.3 Colour

Tendu leaves colour varies from green to reddish/brownish tinge depending on the maturity of leaf at the time of plucking and further processing. Colour specifications for various grades are given in Table 1.

4.4 Odour

The leaves shall not have any undesirable and extraneous odour and on burning shall produce agreeable aroma.

5 GRADES

Tendu leaves shall be of the seven grades as given in Table 1. The broad morphological characters on which leaves are selected and categorized for *bidi* making are size, colour, thickness of leaves, texture, relative thickness of midrib and lateral veins, blemishes and damages.

6 PACKAGING

6.1 Required number or mass of dried and graded leaves in bundles shall be packed tightly in a sound and clean jute gunny bag. The bag shall be free from any insect infestation or fungus contamination or from any undesirable smell. Each bag shall contain *Tendu* leaf of one grade designation only.

6.2 The packages shall be securely closed and sealed properly.

7 MARKING

Each bag shall be marked on each side with the following details:

- a) Description of contents,
- b) Name of the State/Forest of collection,
- c) Name of supplier,
- d) Grade designation,
- e) Net quantity of contents,
- f) Number of leaves per *puda*,
- g) Date of packing, and
- h) Any other marking required under the *Legal Metrology (Packaged Commodities) Rules, 2011*.

8 STORAGE

Tendu leaves bags shall be stored in a clean and dry place away from moisture and heat.

9 SAMPLING

Representative samples of *Tendu* leaf shall be drawn and conformity of the material in the lot to the specification, shall be determined according to the procedure given in Annex A.

Table 1 Grade Designation and Requirement of *Tendu* Leaf
(Clauses 4.1, 4.2 and 4.3)

Grade Designation	Colour	Texture	Size, Shape, Body and Condition	Remarks
(1)	(2)	(3)	(4)	(5)
I	Greenish or greenish white	Medium texture	18 cm × 8 cm, <i>Min</i> ; Good body leaves, free from hairs, mould, dirt and holes, with depressed and few veins. Soft but not too dry or brittle.	May contain upto 10 percent of leaves of Grade II
II	Greenish white or greenish yellow	Medium texture	16 cm × 8 cm, <i>Min</i> ; Good body leaves, free from hair, mould, dirt and holes, with depressed veins. Soft but not too dry or brittle.	May contain upto 20 percent of leaves of Grade IV and upto 5 percent of lower dimensions leaves of other Grade
III	Greenish white or greenish yellow	Medium texture	Mixed sizes and shapes. Good body leaves, free from hairs, mold, dirt and holes, with depressed veins, soft but not too dry or brittle. Holes not to exceed 5 percent of the total area of the damaged leaf.	May contain up to 20 percent of leaves of Grade IV.
IV	Dull green to reddish/brownish tinge	Fair to thick texture	14 cm × 8 cm, <i>Min</i> ; body of leaves semi-coarse to coarse, slightly hairy or velvety with slightly prominent veins. Mould, blemish and holes together not exceeding 5 percent of the total area of the damaged leaf.	Should contain at least 20 percent leaves of Grade II and may contain up to 10 percent of leaves of Grade V
V	Dark green to reddish/brownish tinge	Thick texture	15 cm × 8 cm, <i>Min</i> ; coarse body leaves, hairy or velvety, with slightly prominent veins, mould, blemish and holes together not exceeding 5 percent of the total area of the damaged leaf.	Should contain at least 20 percent leaves of Grade IV and may contain up to 10 percent leaves of grade VI
VI	Brownish to reddish brown	Thick texture	15 cm × 8 cm, <i>Min</i> ; body of leaves coarse, hairy and velvety with prominent veins, uneven or up to 10 wrinkled surface; mould, blemish, and holes together not exceeding 20 percent of the total area of the damaged leaf.	Should contain at least 20 percent leaves of Grade V and may contain up to 10 percent leaves of Grade VII
VII	Mixed colour	Mixed texture	Mixed sizes and shapes, mixed body leaves, hairy and velvety with prominent veins, uneven or wrinkled surface, mould blemish and holes together not exceeding 30 percent of the total area of the damaged leaf.	Should contain at least 20 percent of leaves of Grade VI

ANNEX A

(Clause 9)

SAMPLING OF *TENDU* LEAF

A-1 SCALE OF SAMPLING

A-1.1 Lot All the bundles (*Pudas*) of *Tendu* leaf of the same grade and collected at a time shall grouped together to constitute a lot.

A-1.2 For ascertaining the conformity of the material to the requirements of the specification, samples shall be tested for each lot separately.

A-1.3 The number of bundles to be selected from the lot shall depend on the size of the lot and shall be according to Table 2.

Table 2 Scale of Sampling

(Clauses A-1.3.1 and A-2.1)

No. of Bundles in the Lot	Sample Size	Acceptance Number
(1)	(2)	(3)
up to 1 000	30	2
1 001 to 3 000	50	3
3 001 to 10 000	80	5
10 001 and above	125	7

A-1.3.1 At least 25 percent of the gunny bags, subject to a minimum of 2, shall be selected from the lot and from each bag so selected approximately equal number of bundles shall be selected so as to constitute the required sample size given in col 2 of Table 2.

A-1.3.2 The bundles from the gunny bags shall be selected at random. In order to ensure the randomness of selection, procedures given in IS 4905 may be followed.

A-2 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 From each of the bundles selected according to **A-1.3** a *Tendu* leaf shall be picked up at random and examined for all the requirements of the specification. A *Tendu* leaf failing in one or more of the requirements shall be considered as defective. The lot shall be declared as conforming to the requirements of the specification if the number of defective *Tendu* leaves found in the sample is less than or equal to the corresponding acceptance number given in col 3 of Table 2.

ANNEX B*(Foreword)***COMMITTEE COMPOSITION**

Tobacco and Tobacco Products Sectional Committee, FAD 04

<i>Organization</i>	<i>Representative(s)</i>
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Central Tobacco Research Institute, Rajahmundry	DR C. CHANDRASEKHARA RAO
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